UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

JUL 06 2011

MEMORANDUM

SUBJECT: Request for a Time-Critical Removal Action at the Diaz Intermediates Corp. Superfund Site, West Memphis, Crittenden County, Arkansas

FROM: Adam Adams, On-Scene Coordinator
Superfund Removal Team (6SF-PR)

Charles Fisher, Remedial Project Manager
Superfund Texas/Arkansas Section (6SF-RA)

THRU: for Ragan Broyles, Associate Director
Prevention and Response Branch (6SF-P)

TO: Samuel Coleman, P.E., Director
Superfund Division (6SF)

I. PURPOSE

This Memorandum requests and documents the approval of a Time-Critical Removal Action pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. § 9601 et seq., at the Diaz Intermediates Corp. Superfund Site, (hereafter referred to as the "Site"). The proposed action includes the removal of the threat to human health and the environment posed by hazardous substances generated, stored, and abandoned at the Site.

This action meets the criteria for initiating a removal action under Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR §300.415 (b)(2), and this action is expected to require less than twelve months to complete and less than $2,000,000.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS No:	ARR000005843
Category of Removal:	Time Critical
Site ID No:	A6C4
Latitude:	35.1070830 North
Longitude:	- 90.1930000 West

637866

A. Site Description

1. Removal Site Evaluation

Diaz Intermediates Corp. (Diaz) was a supplier of high purity, halogenated, fine organics to the chemical industry, using bromine as the primary raw material in the formulation of their products. Diaz shut down in late July 2007 and filed for Chapter 7 bankruptcy in August 2007 in the Eastern District of Arkansas. The Site contains approximately 2,200 containers of varying sizes (from 5 gallon pails to 550 gallon totes), 8 above ground storage tanks, and 7 railroad tank cars. The contents of these containers vary from finished products, to off-specification and/or intermediate products, and raw materials. In addition, material remains in process piping and equipment vessels. On September 12, 2007, the Arkansas Department of Environmental Quality (ADEQ) requested assistance from the EPA to address the abandoned hazardous substances at the Site.

A removal assessment was conducted in October 2007, in which the containers were inventoried and representative samples were collected for hazard categorization (HAZCAT®) field chemistry screening. Field screening showed most of the drums as having either corrosive or flammable characteristics. ADEQ requested in December 2007 that EPA return and abate releases and the threat of releases to protect public health and the environment, due to the deterioration of drums, leaking drums, and pooling of storm water in the secondary containment areas.

Between December 2007 and June 2010, EPA has conducted several stabilization efforts at the facility to stabilize and/or remove the release or threat of release of hazardous substances, pollutants, or contaminants and protect public health and the environment.

2. Physical Location

The Site is located at 301 Wyanoke Road, West Memphis, Crittenden County, Arkansas 72301. The Site latitude is 35.1070830 North, and the Site longitude is - 90.1930000 West. The Site is adjacent to active commercial and/or industrial facilities to the north, east, and south. The fields to the west are agricultural. The Site is located 0.70 miles west of the Mississippi River.

3. Site Characteristics

The Site was built in 1998 and sits on 10 acres of land consisting of a 5,700 square foot (SF) processing plant; a 1,380 SF tank farm area; an outside drum storage area; offices; labs; and a warehouse area. The facility was shut down in July 2007, and on August 15, 2007, Diaz Intermediates Corp. filed for Chapter 7 Bankruptcy in the Eastern District of Arkansas. James C. Luker was appointed the U.S. Bankruptcy Trustee for the Diaz case on August 15, 2007, and the Trustee's request for abandonment of the facility property was granted by the court on October 23, 2007.

Based upon Site inspections, completion of an EPA Site Assessment and a review of several ADEQ site inspection reports, EPA Region 6 confirmed that most of the above ground storage tanks, plastic 55 gallon drums, plastic totes and smaller containers contain hazardous substances, pollutants and/or contaminants. As part of the EPA Site Assessment, the following chemical names were obtained from labels of containers with contents; bromine, benzene, bromochlorobenzene, dibromobenzene, flurobenzene, bromoflurobenzene, bromotoluene, bromobenzene, dibromotoluene, propylbromide, dibromofluorobenzene, amylbromide, bromoanisole, and hydrobromic acid.

4. Releases or Threatened Release Into the Environment of a Hazardous Substance, Pollutant or Contaminant

A release or the threat of a release of a hazardous substance into the environment exists at the Site. As previously noted, the Site contains approximately 2,200 containers of varying sizes (from 5 gallon pals to 550 gallon plastic totes), and 8 above ground storage tanks. Many of the containers have been repaired or replaced over time during stabilization efforts performed by the EPA. Containers will continue to deteriorate over time and require further stabilization efforts until the hazardous substances are removed from the Site. The presence of a strong bromine odor further substantiates the fact that the containers continue to deteriorate and lose a proper seal or become damaged. Drums are improperly stored and may release their entire contents into the environment if a response action does not continue into the future. Furthermore, subsequent mixing of potential incompatible chemicals may result in a fire and/or explosion at the Site.

5. NPL Status

The Site is not on the National Priorities List (NPL) and has not been referred for a Hazard Ranking System rating.

6. Attachments

Attachment 1 - Enforcement Attachment-Confidential/FOIA Exempt
Attachment 2 - Vicinity Map, Site Map
Attachment 3 - NIOSH Pocket Guide for Bromine
Attachment 4 - NIOSH Pocket Guide for Hydrobromic acid / Hydrogen bromide
Attachment 5 - NIOSH Pocket Guide for Benzene
Attachment 6 - ATSDR ToxFAQ for Benzene

B. Other Actions to Date

1. Previous Actions

After ADEQ referred the Site to the EPA in September 2007, EPA has mobilized and conducted assessment and stabilization efforts over six times to assess, contain, and remove the release and threat of release of hazardous substances, pollutants, and contaminants at the Site.

Samples have been collected and analyzed from containers, tanks, storm water, etc. and have indicated the presence of flammables (D001) and corrosives (D002) throughout the Site. Through the many stabilization efforts that have been conducted at the Site, the containers, drums, and totes continue to weather, deteriorate, and require replacement, restaging, or additional secondary containment control measures. Storm water that had accumulated at the Site in the secondary containment areas was sampled and discharged, after sample results indicated nonhazardous substances, and ADEQ along with the city of West Memphis confirmed the disposition of the nonhazardous storm water.

2. Current Actions

EPA currently has no active stabilization actions being conducted at the Site, but will resume stabilization efforts as needed until the hazardous substances, pollutants, and contaminants are removed from the Site.

C. State and Local Authorities' Roles

1. State and Local Actions To Date

The ADEQ referred the Site to EPA Region 6 in September 2007, and has continued to coordinate with the EPA in checking the status of the Site, condition of the containers, drums, and totes, and secondary containment levels regularly. The ADEQ has made site visits and maintained communications with the designated EPA OSC throughout and between stabilization efforts, to report areas of concern and Site status updates or changes.

2. Potential for Continued State/Local Response

The State and local authorities do not have the resources to conduct a thorough removal of the hazardous substances, pollutants, and contaminants at the abandoned Site.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

The current conditions at the Site meet the following factors which indicate that the Site is a threat to the public health, welfare and the environment and a removal action is appropriate under Section 300.415(b)(2)(i)(ii)(iii)(v)(vi) and (vii) of the NCP. Any or all of these factors may be present at the Site yet any one of these factors may determine the appropriateness of a removal action.

1. Actual or Potential Expense to Nearby Populations, Animals, or the Food Chain from Hazardous Substance or Pollutants or Contaminants. NCP Section 300.415(b)(2)(i).

There is potential for exposure of human populations and animals to D-listed hazardous substances as defined at 40 C.F.R. § 302.4. Flammables and corrosives are D-listed hazardous substances which have been identified on-site through site assessment and the potential for release is great. People or animals coming into contact with the deteriorating containers or downwind of the Site could become exposed to these hazardous substances. There are three businesses located adjacent to the Site on the north, east, and south sides. There are residential homes less than 1.5 miles from the Site.

Flammable substances are defined as D001 hazardous material at 40 C.F.R. § 302.4. Hazard characterization field screening and site assessment of the on-site containers indicated the presence of flammable and highly flammable substances stored in deteriorating containers. Exposure may occur by inhalation, absorption, or by ingestion. Additional damage and exposure could occur if materials on-site react and result in fire and explosions and burn down neighboring businesses.

Corrosive substances are defined as D002 hazardous material at 40 C.F.R. § 302.4. Hazard characterization field screening and site assessment of the on-site containers indicated the presence of corrosive substances stored in deteriorating containers within close proximity to flammable substances. Exposure may occur by inhalation, absorption, or by ingestion. Additional damage and exposure could occur if materials on-site react and result in fire and explosions and burn down neighboring businesses.

Vapor exposure from many of the bromine containing chemicals may be fatal if inhaled, corrosive to the skin and eyes, and causes severe respiratory tract, nose, and throat irritation. Direct contact may result in eye and skin burns that are slow to heal. Vapor exposure may also cause inflammation of the eyes, coughing, nosebleed, vertigo, headache, possible delayed abdominal pain, nausea, and diarrhea. Each hazardous material described above is a hazardous substance as defined at CERCLA § 101(14), 42 U.S.C. § 9601(14), and listed at 40 C.F.R. § 302.4.

2. Contamination of Drinking Water Supplies or Sensitive Ecosystems. NCP Section 300.415(b)(2)(ii)

If the containers, drums, and totes continue to deteriorate prior to being removed, they can fault and leak out into the drainage pathway around the property. Additionally, if a fire were to occur, the fire water would drain from the Site to the drainage pathways around the property. Heavy rains could cause over flow from the containment areas and carry leaked hazardous substances into the drainage pathways around the property. The drainage paths around the property would initially impact the surrounding agricultural lands, but would also impact the above ground storm water and sanitary sewer systems, and eventually the Mississippi River, which is located 0.70 miles from the Site.

3. Hazardous Substances or Pollutants or Contaminants in Drums, Barrels, Tanks Or Other Bulk Storage Containers That May Pose a Threat of Release NCP Section 300.415(b)(2)(iii)

There are approximately 2,200 containers of varying sizes (from 5 gallon pails to 550 gallon totes), and 8 above ground storage tanks located on the Site property. Most of these deteriorate over time and begin to leak, if not addressed in time or removed appropriately.

4. Weather Conditions That May Cause Hazardous Substances or Pollutants or Contaminants to Migrate or be Released. NCP Section 300.415(b)(2)(v)

East Arkansas is subject to several types of extreme weather conditions, which may cause a potential release of chemicals/substances at or from the Site. For example, high winds, flooding, a tornado, and/or heavy rain fall event(s) could cause a potential release of chemicals/substances from the above ground secondary containments, drums, totes, and small containers, and then in turn cause the migration of contaminants off-site.

5. Threat of Fire or Explosion. NCP Section 300.415(b)(2)(vi)

Drums have potentially been staged with no apparent consideration for compatibility. The combination of incompatible materials such as acids and bases could result in exothermic reactions, which in turn could result in a fire and explosion. The resulting fire and associated vapors could potentially severely impact the 3 adjacent active business employees and populations, cause an evacuation and threaten their health and welfare. For example, bromine under fire conditions may release toxic and irritating fumes. Containers under fire conditions may explode and spread the fire. In fire situations, bromine releases hydrogen bromide, which is toxic and highly corrosive, especially in the presence of moisture.

6. The Availability of Other Mechanisms. NCP Section 300.415(b)(2)(vii)

ADEQ has requested assistance from EPA, due to the limited State resources available to ensure a thorough and timely removal action.

B. Threats to the Environment

Any chemicals released into the environment from the containers, drums, totes, etc. at the Site would drain into the ditches surrounding the property, into the sanitary sewer system, into the storm drain system, and eventually into the Mississippi River, located 0.70 miles from the Site. The EPA is not aware of any sensitive animal populations or habitats in the vicinity of the Site which could be affected by the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances, pollutants or contaminants from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed actions

1. Proposed Action Description

The proposed removal action involves removal and proper off-site disposal of all hazardous substances, pollutants, or contaminants at the Site. Hazardous materials and substances in containers, drums, totes, tanks, or other containments will be categorized and profiled for disposal. Drums will be secured, over-packed, or bulked prior to shipment and disposal. If process equipment and piping contains hazardous substances, that material will also be removed and disposed of accordingly. As much as possible, the hazardous materials on-site will be consolidated into like materials with like characteristics in order to minimize disposal costs. Smaller containers will be bulked or lab packed to the extent possible prior to shipment and disposal. Other containers will be secured or repackaged into transportable containers prior to shipment and disposal. Sampling and analytical services may be utilized for waste stream profiling. The disposal will utilize landfills, incinerators, and energy recovery as determined by waste profiling and the most cost effective method of disposition. There are no planned soil excavation activities during this action; however, if site conditions arise that warrant the excavation of soil, contaminated soils will be excavated to a depth no greater than two feet below the surface of the ground. Upon the completion of this removal action, the Site will be transferred back to ADEQ.

All disposal will be in accordance with EPA's Off-site Rule, 40 CFR § 300.440, and CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and all transportation will be in accordance with Department of Transportation rules and regulations.

Other requirements under the Occupational Safety and Health Act (OSHA) of 1970, 29 U.S.C. § 651 et seq., and under the laws of a State with an approved equivalent worker safety program, as well as other applicable safety and health requirements, will be followed. Federal OSHA requirements include, among other things, Hazardous Materials Operation, 20 CFR Part 1910, as amended by 54 Fed. Reg. 9317 (March 1989), all OSHA General Industry (29 CFR Part 1910) and Construction (29 CFR Part 1926) standards wherever they are relevant, as well as OSHA record keeping and reporting regulations, and the EPA regulations set forth in 40 CFR Part 300 relating to the conduct of work at Superfund sites.

2. Contribution to Remedial Performance

It is anticipated that no remedial action will take place at the site. If any remedial action should occur, the proposed action is consistent with the remedial action as it removes the source of the contamination.

3. Description of Alternative Technologies

There are no alternative technologies that could feasibly be applied to the site.

4. Applicable or Relevant and Appropriate Requirements (ARAR)

This removal action will be conducted to eliminate the actual or potential exposure to hazardous substances, pollutants or contaminants to the environment, pursuant to CERCLA, 42 U.S.C. §9601 et seq., and in a manner consistent with the National Contingency Plan (NCP), 40 CFR Part 300, as required at 33 U.S.C. §1321(c)(2) and 42 U.S.C. §9605. Pursuant to 40 CFR Part 300.415(j), fund-financed removal actions under CERCLA §104 and removal actions pursuant to CERCLA §106 shall, to the extent practicable considering the exigencies of the situation, attain the applicable or relevant and appropriate requirements under Federal environmental law including but not limited to, Toxic Substances Control Act (TCSA), 15 U.S.C. Section 2601 et seq., Clean Air Act (CAA), 42 U.S.C. Section 7401 et seq., Solid Waste Disposal Act (SWDA), 40 U.S.C. Section 6901 et seq., the Resource Conservation and Recovery Act RCRA, 42 U.S.C. Section 6901 et seq., Fish and Wildlife Coordination Act (FWCA) 16 U.S.C. Section 661 et seq., Hazardous Materials Transportation Act (HMTA) 49 U.S.C. Section 1801 et seq., or any promulgated standard, applicable or relevant and appropriate requirements, criteria or limitations under a State environmental or facility citing law that is more stringent than any Federal standard, requirement, criteria, or limitation contained in a program approved, authorized or delegated by the Administrator and identified to the President by the State.

The RCRA manifesting requirements found at 40 CFR § 262.20, and RCRA packaging and labeling requirements found at 40 CFR § 262.30 may be appropriate requirements for this removal action. The DOT regulations contain requirements for transportation of hazardous materials, including hazardous wastes, to locations offsite. All hazardous substances, pollutants, or contaminants removed offsite for treatment, storage, or disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, pursuant to CERCLA Section 121(d)(3), 42 U.S.C. Section 121(d)(3), and the following rule: "Amendment to the National Oil and Hazardous Substances Pollution Contingency Plan; Procedures for Planning and Implementing Offsite Response Action: Final Rule." 58 FR 49200 (September 22, 1993), and codified at 40 CFR § 300.440.

Because on-site storage of hazardous wastes is not expected to exceed ninety days, specific storage requirements found at 40 CFR § 265 are neither applicable nor relevant and appropriate. See 40 CFR § 262.34.

5. Project Schedule

After the Action Memorandum is signed, it is anticipated that the cleanup action will commence in July of 2011. Total project length will be approximately 90 days.

B. Estimated Costs

Extramural Costs:	**Initial Ceiling:**	**Current Increase:**	**Current Ceiling:**
Regional Allowance Costs:			
ERRS	$170,000	$1,200,500	$1,370,500
Other Extramural Costs Not Funded From the Regional Allowance:			
START	$55,000	$150,000	$205,000
Subtotal, Extramural Costs:	$225,000	$1,350,500	$1,575,500
Extramural Costs Contingency:	$22,500	$270,100	$292,600
TOTAL EXTRAMURAL COSTS:	**$247,500**	**$1,620,600**	**$1,868,100**

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If these response actions are not taken at the Site, adjacent residents and workers will continue to be in danger of being exposed to hazardous substances that have and continue to be released at the abandoned site. As cited above, such exposure could possibly lead to adverse health effects including death.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues associated with this site.

VIII. ENFORCEMENT

Based on full-cost accounting practices, the total costs incurred for this removal action that will be eligible for cost recovery are estimated to be **$2,949,731.03**.

(Direct Cost) + (Other Direct) + (42.63% of Total Direct [Indirect Cost) =
Estimated EPA Cost for a Removal Action

$ 1,868,100 + $200,000 + (42.63% x ($1,868,100 + $ 200,000)) = **$2,949,731.03**

Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2002. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only, and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor the deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Dias Intermediates Corp. Site, located in West Memphis, Arkansas, developed in accordance with CERCLA, 42 U.S.C. § 9601 et seq., and not inconsistent with the NCP, 40 C.F.R. Part 300. This decision is based on the administrative record for the site.

Conditions at the Site meet the criteria as defined by Section 300.415(b) (2) of the NCP, 40 C.F.R. § 300.415(b) (2), for a removal, and I recommend your formal approval of the documented removal action. The total project ceiling is **$ 1,868,100**. Of this, an estimated **$1,370,500** (without contingency) is from the Regional Removal Allowance.

Approved: Pamela Phillips Acting Date: 7/6/2011
Samuel Coleman, P.E./Director
Superfund Division

Attachments

ATTACHMENT 1

ENFORCEMENT ATTACHMENT TO ACTION MEMORANDUM/CONFIDENTIAL-FOIA EXEMPT

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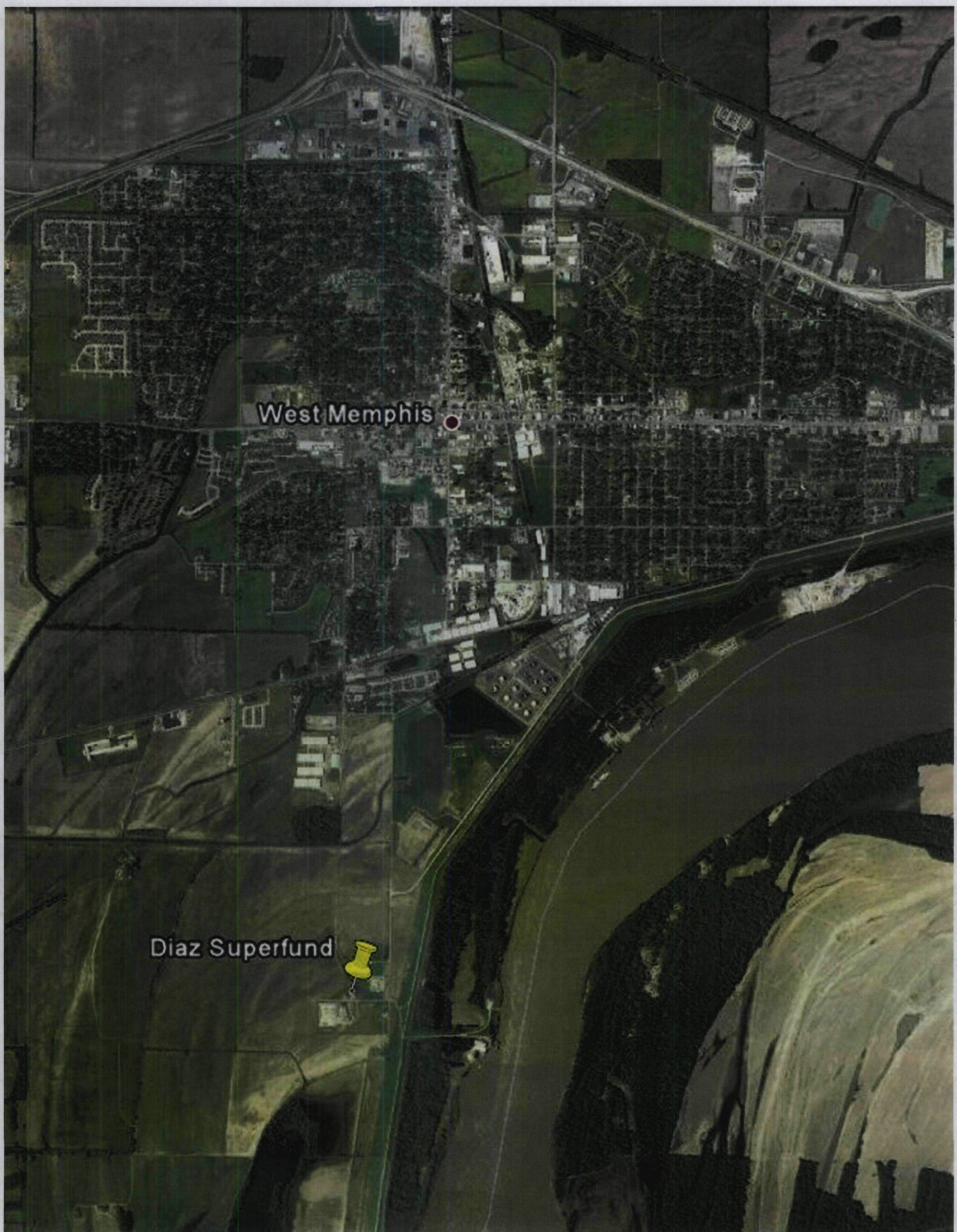
ATTACHMENT 2

SITE MAPS:

2.A VICINTY MAP
2.B SITE MAP


West Memphis
Diaz Superfund

ATTACHMENT 3

NIOSH POCKET GUIDE FOR "BROMINE"

Centers for Disease Control and Prevention
Your Online Source for Credible Health Information

Search the Pocket Guide

SEARCH

Enter search terms separated by spaces.

Bromine

Synonyms & Trade Names Molecular bromine

CAS No. 7726-95-6	**RTECS No.** EF9100000 (/niosh-rtecs/EF8ADAE0.html)	**DOT ID & Guide** 1744 154 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=154)
Formula Br_2	**Conversion** 1 ppm = 6.54 mg/m^3	**IDLH** 3 ppm See: 7726956 (/niosh/idlh/7726956.html)
Exposure Limits **NIOSH REL** : TWA 0.1 ppm (0.7 mg/m^3) ST 0.3 ppm (2 mg/m^3) **OSHA PEL** † (nengapdxg.html) : TWA 0.1 ppm (0.7 mg/m^3)		**Measurement Methods** **NIOSH** 6011 (/niosh/docs/2003-154/pdfs/6011.pdf) ; **OSHA** ID108 (http://www.osha.gov/dts/sltc/methods/inorganic/id108/id108.html) See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html)

Physical Description Dark reddish-brown, fuming liquid with suffocating, irritating fumes.

MW: 159.8	**BP:** 139° F	**FRZ:** 19°F	**Sol:** 4%	**VP:** 172 mmHg	**IP:** 10.55 eV
Sp.Gr: 3.12	**Fl.P:** NA	**UEL:** NA	**LEL:** NA		

Noncombustible Liquid, but accelerates the burning of combustibles.

Incompatibilities & Reactivities Combustible organics (sawdust, wood, cotton, straw, etc.), aluminum, readily oxidizable materials, ammonia, hydrogen, acetylene, phosphorus, potassium, sodium [Note: Corrodes iron, steel, stainless steel & copper.]

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms dizziness, headache; lacrimation (discharge of tears), epistaxis (nosebleed); cough, feeling of oppression, pulmonary edema, pneumonitis; abdominal pain, diarrhea; measle-like eruptions; eye, skin burns

Target Organs respiratory system, eyes, central nervous system, skin

Personal Protection/Sanitation (See protection codes (protect.html)) **Skin:** Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contaminated **Remove:** When wet or contaminated **Change:** No recommendation **Provide:** Eyewash, Quick drench	**First Aid** (See procedures (firstaid.html)) **Eye:** Irrigate immediately **Skin:** Soap wash immediately **Breathing:** Respiratory support **Swallow:** Medical attention immediately

Respirator Recommendations
NIOSH/OSHA

Up to 2.5 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode£

(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern¿£

Up to 3 ppm:
(APF = 50) Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against the compound of concern¿
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern¿
(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and cartridge(s) providing protection against the compound of concern¿£
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern¿
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html) See ICSC CARD: 0107 (/niosh/ipcsneng/neng0107.html)
See MEDICAL TESTS: 0028 (/niosh/docs/2005-110/nmed0028.html)

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Page last updated: November 18, 2010
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Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348, 24 Hours/Every Day - cdcinfo@cdc.gov

ATTACHMENT 4

NIOSH POCKET GUIDE
FOR
"HYDROBROMIC ACID/HYDROGEN BROMIDE"

Centers for Disease Control and Prevention
Your Online Source for Credible Health Information

Search the Pocket Guide

SEARCH

Enter search terms separated by spaces.

Hydrogen bromide

Synonyms & Trade Names Anhydrous hydrogen bromide; Aqueous hydrogen bromide (i.e., Hydrobromic acid)

CAS No. 10035-10-6	**RTECS No.** MW3850000 (/niosh-rtecs/MW3ABF10.html)	**DOT ID & Guide** 1048 125 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=125) (anhydrous) 1788 154 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=154) (solution)
Formula HBr	**Conversion** 1 ppm = 3.31 mg/m^3	**IDLH** 30 ppm See: 10035106 (/niosh/idlh/10035106.html)
Exposure Limits **NIOSH REL** : C 3 ppm (10 mg/m^3) **OSHA PEL** † (nengapdxg.html) : TWA 3 ppm (10 mg/m^3)		**Measurement Methods** **NIOSH** 7903 (/niosh/docs/2003-154/pdfs/7903.pdf) ; **OSHA** ID165SG (http://www.osha.gov/dts/sltc/methods/inorganic/id165sg/id165sg.html) See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html)

Physical Description Colorless gas with a sharp, irritating odor. [Note: Shipped as a liquefied compressed gas. Often used in an aqueous solution.]

MW: 80.9	**BP:** -88°F	**FRZ:** -124° F	**Sol:** 49%	**VP:** 20 atm	**IP:** 11.62 eV
	Fl.P: NA	**UEL:** NA	**LEL:** NA	**RGasD:** 2.81	

Nonflammable Gas

Incompatibilities & Reactivities Strong oxidizers, strong caustics, moisture, copper, brass, zinc [Note: Hydrobromic acid is highly corrosive to most metals.]

Exposure Routes inhalation, ingestion (solution), skin and/or eye contact

Symptoms irritation eyes, skin, nose, throat; solution: eye, skin burns; liquid: frostbite

Target Organs Eyes, skin, respiratory system

Personal Protection/Sanitation (See protection codes (protect.html)) **Skin:** Prevent skin contact (solution)/Frostbite **Eyes:** Prevent eye contact (solution)/Frostbite **Wash skin:** When contaminated (solution) **Remove:** When wet or contaminated (solution) **Change:** No recommendation **Provide:** Eyewash (liquid), Quick drench (solution), Frostbite wash	**First Aid** (See procedures (firstaid.html)) **Eye:** Irrigate immediately (solution)/Frostbite **Skin:** Water flush immediately (solution)/Frostbite **Breathing:** Respiratory support **Swallow:** Medical attention immediately (solution)

Respirator Recommendations

NIOSH/OSHA

Up to 30 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode[£]
(APF = 25) Any powered, air-purifying respirator with acid gas cartridge(s)[£]
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html) See ICSC CARD: 0282 (/niosh/ipcsneng/neng0282.html)

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Content source: National Institute for Occupational Safety and Health (NIOSH) Education and Information Division

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348, 24 Hours/Every Day - cdcinfo@cdc.gov

ATTACHMENT 5

NIOSH POCKET GUIDE FOR "BENZENE"

Centers for Disease Control and Prevention
Your Online Source for Credible Health Information

Search the Pocket Guide

SEARCH

Enter search terms separated by spaces.

Benzene

Synonyms & Trade Names Benzol, Phenyl hydride

CAS No. 71-43-2	**RTECS No.** CY1400000 (/niosh-rtecs/CY155CCo.html)	**DOT ID & Guide** 1114 130 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=130)
Formula C_6H_6	**Conversion** 1 ppm = 3.19 mg/m^3	**IDLH** Ca [500 ppm] See: 71432 (/niosh/idlh/71432.html)
Exposure Limits **NIOSH REL** : Ca TWA 0.1 ppm ST 1 ppm See Appendix A (nengapdxa.html) **OSHA PEL** : [1910.1028] TWA 1 ppm ST 5 ppm See Appendix F (nengapdxf.html)		**Measurement Methods** **NIOSH** 1500 (/niosh/docs/2003-154/pdfs/1500.pdf), 1501 (/niosh/docs/2003-154/pdfs/1501.pdf), 3700 (/niosh/docs/2003-154/pdfs/3700.pdf), 3800 (/niosh/docs/2003-154/pdfs/3800.pdf); **OSHA** 12 (http://www.osha.gov/dts/sltc/methods/organic/org012/org012.html), 1005 (/niosh/docs/2003-154/pdfs/1005.pdf) See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html)

Physical Description Colorless to light-yellow liquid with an aromatic odor. [Note: A solid below 42°F.]

MW: 78.1	**BP:** 176° F	**FRZ:** 42°F	**Sol:** 0.07%	**VP:** 75 mmHg	**IP:** 9.24 eV
Sp.Gr: 0.88	**Fl.P:** 12° F	**UEL:** 7.8%	**LEL:** 1.2%		

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities Strong oxidizers, many fluorides & perchlorates, nitric acid

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]

Target Organs Eyes, skin, respiratory system, blood, central nervous system, bone marrow

Cancer Site [leukemia]

Personal Protection/Sanitation (See protection codes (protect.html)) **Skin:** Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contaminated **Remove:** When wet (flammable) **Change:** No recommendation **Provide:** Eyewash, Quick drench	**First Aid** (See procedures (firstaid.html)) **Eye:** Irrigate immediately **Skin:** Soap wash immediately **Breathing:** Respiratory support **Swallow:** Medical attention immediately

Respirator Recommendations

(See Appendix E) (nengapdxe.html)

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html) See ICSC CARD: 0015 (/niosh/ipcsneng/nengo015.html) See MEDICAL TESTS: 0022 (/niosh/docs/2005-110/nmed0022.html)

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ATTACHMENT 6

ATSDR TOX/FAQ SHEETS FOR "BENZENE"

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

BENZENE

CAS # 71-43-2

Division of Toxicology and Environmental Medicine ToxFAQs™ August 2007

This fact sheet answers the most frequently asked health questions (FAQs) about benzene. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Benzene is a widely used chemical formed from both natural processes and human activities. Breathing benzene can cause drowsiness, dizziness, and unconsciousness; long-term benzene exposure causes effects on the bone marrow and can cause anemia and leukemia. Benzene has been found in at least 1,000 of the 1,684 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is benzene?

Benzene is a colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities.

Benzene is widely used in the United States; it ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals which are used to make plastics, resins, and nylon and other synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs, and pesticides. Natural sources of benzene include emissions from volcanoes and forest fires. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke.

What happens to benzene when it enters the environment?

- ❑ Industrial processes are the main source of benzene in the environment.
- ❑ Benzene can pass into the air from water and soil.
- ❑ It reacts with other chemicals in the air and breaks down within a few days.
- ❑ Benzene in the air can attach to rain or snow and be carried back down to the ground.
- ❑ It breaks down more slowly in water and soil, and can pass through the soil into underground water.
- ❑ Benzene does not build up in plants or animals.

How might I be exposed to benzene?

- ❑ Outdoor air contains low levels of benzene from tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions.
- ❑ Vapors (or gases) from products that contain benzene, such as glues, paints, furniture wax, and detergents, can also be a source of exposure.
- ❑ Air around hazardous waste sites or gas stations will contain higher levels of benzene.
- ❑ Working in industries that make or use benzene.

How can benzene affect my health?

Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death.

The major effect of benzene from long-term exposure is on the blood. Benzene causes harmful effects on the bone

marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection.

Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries, but we do not know for certain that benzene caused the effects. It is not known whether benzene will affect fertility in men.

How likely is benzene to cause cancer?

Long-term exposure to high levels of benzene in the air can cause leukemia, particularly acute myelogenous leukemia, often referred to as AML. This is a cancer of the blood-forming organs. The Department of Health and Human Services (DHHS) has determined that benzene is a known carcinogen. The International Agency for Research on Cancer (IARC) and the EPA have determined that benzene is carcinogenic to humans.

How can benzene affect children?

Children can be affected by benzene exposure in the same ways as adults. It is not known if children are more susceptible to benzene poisoning than adults.

Benzene can pass from the mother's blood to a fetus. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

How can families reduce the risks of exposure to benzene?

Benzene exposure can be reduced by limiting contact with gasoline and cigarette smoke. Families are encouraged not to smoke in their house, in enclosed environments, or near their children.

Is there a medical test to determine whether I've been exposed to benzene?

Several tests can show if you have been exposed to benzene. There is a test for measuring benzene in the breath; this test must be done shortly after exposure. Benzene can also be measured in the blood; however, since benzene disappears rapidly from the blood, this test is only useful for recent exposures.

In the body, benzene is converted to products called metabolites. Certain metabolites can be measured in the urine. The metabolite S-phenylmercapturic acid in urine is a sensitive indicator of benzene exposure. However, this test must be done shortly after exposure and is not a reliable indicator of how much benzene you have been exposed to, since the metabolites may be present in urine from other sources.

Has the federal government made recommendations to protect human health?

The EPA has set the maximum permissible level of benzene in drinking water at 5 parts benzene per billion parts of water (5 ppb).

The Occupational Safety and Health Administration (OSHA) has set limits of 1 part benzene per million parts of workplace air (1 ppm) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Benzene (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

JUL 06 2011

MEMORANDUM

SUBJECT: Request for a Time-Critical Removal Action at the Diaz Intermediates Corp. Superfund Site, West Memphis, Crittenden County, Arkansas

FROM: Adam Adams, On-Scene Coordinator
Superfund Removal Team (6SF-PR)

Charles Fisher, Remedial Project Manager
Superfund Texas/Arkansas Section (6SF-RA)

THRU: Ragan Broyles, Associate Director
Prevention and Response Branch (6SF-P)

TO: Samuel Coleman, P.E., Director
Superfund Division (6SF)

I. PURPOSE

This Memorandum requests and documents the approval of a Time-Critical Removal Action pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. § 9601 et seq., at the Diaz Intermediates Corp. Superfund Site, (hereafter referred to as the "Site"). The proposed action includes the removal of the threat to human health and the environment posed by hazardous substances generated, stored, and abandoned at the Site.

This action meets the criteria for initiating a removal action under Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR §300.415 (b)(2), and this action is expected to require less than twelve months to complete and less than $2,000,000.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS No:	ARR000005843
Category of Removal:	Time Critical
Site ID No:	A6C4
Latitude:	35.1070830 North
Longitude:	- 90.1930000 West

Webster	Broyles/Petersen	Johnson	Werner	Emerson	Peycke
6SF-PR	for 6SF-P	6SF-TE	6SF-TE	6RC-S	6RC-S
7/6/11	7/6/11	7/7/11	7/7/11	7/7/11	